

Remarks

Claims 1-23 are currently pending in this application. All claims are before the Examiner for consideration.

Claims 1-23 have been rejected under 35 U.S.C. § 102(b) over Kiely *et al.* ('035). The subject application describes a method of making high molecular weight stereoregular head, tail-poly(alkylene D-glucaramides). The cited reference likewise describes a method of making stereoregular polyglucaramides. The polymers made by the process in the cited reference however are not large enough to be classified as useful high polymers. The claimed method produces these high polymers.

As noted previously, it was found that the step of esterifying an aminoamido acid to create the polymerization starting material (step a)) caused significant alcoholysis of the amide bond of that starting material and generated a mixture of esterification products and alkylenediammonium dichlorides. The consequence of this process is the generation of polymers (labeled in the present application as prepolymers) whose stereoregularity is compromised since polymerization of the esterified diacid monomer with diamine monomer leads to stereochemically random polymers. For formation of the head,tail-stereoregular polymers (prepolymers) it is essential that the amide bond between the diamine and diacid units not be broken during the esterification step. Such bond breaking according to the reported procedure has now been found to occur, indicating that the stereoregular formation of the polymer has been compromised, which is not the case with the revised, milder esterification now claimed. Step a) as claimed provides a route to the esterified starting aminoalkyl-D-glucamide monomers and a direct route to stereoregular polymers. Correction of this step by the subject disclosure provides improved starting materials for polymerization. Accordingly, the present claims require that step a) be carried out under conditions that limit alcoholysis of the amide bond. In the cited reference step a) involved refluxing materials for 3 hours at an oil bath temperature of 95 °C. Step a) as exemplified in the subject application occurs quickly (20 min.), on ice and quickly (20 min.) at room temperature. One skilled in the art would recognize these and other conditions that limit alcoholysis of the amide bond which are appropriate for use in the subject invention.

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Step b) involves polymerizing the materials from step a) to form poly(glucaramides). The formed poly(glucaramides) are similar in size to those created by the process of the cited reference. Polymers of this size however are not useful and thus larger polymers, high polymers, are desired.

Expected means to increase polymer size such as conducting polymerization in a solvent that simply increases solubility of the forming polymers were unsuccessful. Solvents such as dimethyl sulfoxide (polar aprotic solvent) readily dissolve the esterified amidoamino acid starting materials and the polymers therefrom. However, in spite of the solubility of the resultant polymers in dimethyl sulfoxide and similar solvents, the polymerization process is very slow, the polymers do not become large as one might expect, and the isolation of the polymers is difficult. A one step process to higher molecular weight polymers using one solvent from start to finish does not work. It was found, that in order to create high glucamide polymers it was necessary to conduct a second polymerization step, step c), in a solvent that is different from that used in the prepolymerization step, step b). The solvent used in the second polymerization consists of a solvent to enhance polymer solubility (aprotic solvent) and a solvent to promote the polymerization (protic solvent). Applicants submit the postpolymerization step of step c) is not taught by the cited reference. According to the Federal Circuit, “[a]nticipation requires the disclosure in a single prior art reference of each element of the claim under consideration.” W.L. Gore & Assocs. V. Garlock, Inc. 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983). Step c) is not disclosed by the ‘035 patent. Applicants therefore respectfully request reconsideration and withdrawal of the rejection based on this reference.

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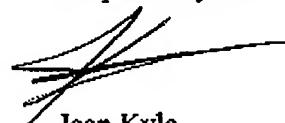
9

Docket No. UMT-105XC1
Serial No. 10/734,417

In view of the foregoing remarks and the amendments to the claims, applicants believe that the claims are now in condition for allowance and such action is respectfully requested.

Applicants invite the Examiner to call the undersigned if clarification is needed on any of this response, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,



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